

Appl. No. 10/717,951
Docket No. XOGN002-01US
Filed: November 19, 2003
Amendment with RCE in Reply to Final Office Action of December 23, 2005

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Currently Amended) A method for treating a waste stream in a waste treatment system, the method comprising the steps of:

operating an oxyhydrogen gas generator within the waste treatment system to produce oxyhydrogen-rich gas by submersing two or more closely spaced electrodes in the waste stream and supplying a pulsed electrical signal to at least one of the electrodes to produce the oxyhydrogen-rich gas;

contacting at least a portion of the waste stream with at least a portion of the oxyhydrogen-rich gas to disinfect conduct a unit process for treating the waste stream; and

conveying at least a portion of the oxyhydrogen-rich gas for a second use in the waste treatment system.

Claim 2. (Original) The method of claim 1 wherein the waste stream includes a water component and the operation of the oxyhydrogen gas generator produces oxyhydrogen-rich gas from the water component of the waste stream.

Claim 3. (Original) The method of claim 1 wherein the waste stream includes a water component, and further comprising:

segregating at least a portion of the water component from the waste stream; and

operating the oxyhydrogen gas generator to produce oxyhydrogen-rich gas from the segregated portion of the water component.

Claim 4. (Original) The method of claim 1 wherein the oxyhydrogen gas generator is operated to produce oxyhydrogen-rich gas from a water source external to the waste stream.

Claims 5 – 23. (Cancelled)

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Claim 24. (Original) The method of claim 1 wherein the second use includes using the oxyhydrogen-rich gas as a fuel for combustion.

Claim 25. (Original) The method of claim 24 wherein the combustion produces heat and the produced heat is recovered for use within the waste treatment system.

Claim 26. (Previously Presented) The method of claim 24, wherein the combustion produces an exhaust including water vapor, and further comprising the step of:

condensing the water vapor from the combustion exhaust for use within the waste treatment system.

Claim 27. (Original) The method of claim 1 wherein the second use includes power generation.

Claim 28. (Original) The method of claim 1 further comprising the step of separating the oxyhydrogen-rich gas into an oxygen-rich component and a hydrogen-rich component.

Claim 29. (Original) The method of claim 28 wherein the second use includes converting at least a portion of the oxygen-rich component to ozone for use in disinfecting effluent in the waste treatment system.

Claim 30. (Previously Presented) The method of claim 28 wherein:

the waste treatment system includes an oxygen demand; and

the second use includes using the oxygen-rich component to fulfill at least a portion of the oxygen demand.

Claim 31. (Original) The method of claim 28 wherein the second use includes using the hydrogen-rich component as a fuel source.

Claims 32-44. (Cancelled)

Claim 45. (Previously Presented) The method of claim 1 further comprising the step of conveying at least a portion of the oxyhydrogen-rich gas to an incinerator, wherein the incinerator uses the oxyhydrogen-rich gas as a fuel source to incinerate the waste stream.

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Claim 46. (Previously Presented) The method of claim 45 wherein the oxyhydrogen-rich gas fuel source provides sufficient energy to incinerate the waste stream without a separate energy source.

Claim 47. (Previously Presented) The method of claim 45 wherein the oxyhydrogen-rich gas fuel source provides sufficient energy to incinerate the waste stream without substantially reducing water content in the waste stream.

Claim 48. (Currently Amended) The method of claim [[33]] 1 wherein the oxyhydrogen-rich gas forms bubbles in a water component of the waste stream, the bubbles adhering to solids in the waste stream and rising to a surface where the solids may be removed.

Claim 49. (New) A system for treating a waste stream comprising:

an oxyhydrogen-rich gas generator having two or more closely spaced electrodes, the electrodes immersed in the waste stream to create oxyhydrogen-rich gas;

a power supply operatively connected to one or more of the electrodes to provide a pulsed electrical signal;

means for contacting at least a portion of the waste stream with at least a portion of the oxyhydrogen-rich gas to disinfect the waste stream; and

means for conveying at least a portion of the oxyhydrogen-rich gas to a device in the system.

Claim 50. (New) The system of claim 49 wherein the waste stream includes a water component.

Claim 51. (New) The system of claim 49 wherein the waste stream includes a water component, the system further comprising:

means for segregating at least a portion of the water component from the waste stream; and

means for operating the oxyhydrogen-rich gas generator to produce oxyhydrogen-rich gas from the segregated portion of the water component.

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Claim 52. (New) The system of claim 49 further comprising:

a water source external to the waste stream operatively connected to the oxyhydrogen-rich gas generator.

Claim 53. (New) The system of claim 49 wherein the device is an incinerator, a power generator or an ozone production unit.

Claim 54. (New) The system of claim 53 further comprising:

means for recovering the heat generated by the device for use within the system.

Claim 55. (New) The system of claim 53 further comprising:

means for condensing water vapor from the combustion of the oxyhydrogen-rich gas for use within the system.

Claim 56. (New) The system of claim 49 further comprising:

means for separating the oxyhydrogen-rich gas into an oxygen-rich component and a hydrogen-rich component.

Claim 57. (New) The system of claim 49 further comprising:

an oxygen demand device.

Claim 58. (New) The system of claim 56 wherein the hydrogen-rich component is a fuel source for the device.

Claim 59. (New) The system of claim 49 wherein the oxyhydrogen-rich gas forms bubbles in the water component of the waste stream, the bubbles adhering to solids in the waste stream and rising to a surface where the solids may be removed.